

A1
Contd.

benzimidazole and benzothiazole and their derivatives with hydroxy, amino, imino, carboxy, mercapto, nitro and alkyl substituted groups, as well as urea, thiourea and others. Other suitable film forming agents may include benzofuran, benzothiadiazole, phenylenediamine, catechol, aminophenol, mercaptobenzothiazole, mercaptobenzotriazole, mercaptobenoxazole, melamine and thiadiazole.--

Please replace the paragraph beginning at page 18, line 14, with the following rewritten paragraph:

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-- In another embodiment (not illustrated), the present invention may be configured for endpoint detection. Referring again to Fig. 6, as the metallized surface 80 of wafer 60 is removed during the planarization process, the resistance of the metallized surface 80 increases, thereby increasing the voltage through wafer 60. This change in the electrical potential across the metallized surface may be monitored to determine the desired endpoint of the planarization process. Accordingly, the present invention provides the advantage of in-situ endpoint detection without requiring an additional dedicated endpoint detection system. --

IN THE CLAIMS

Please amend claims 13, 22, 24, 39, 52 and 56 as follows:

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13. (Amended) The apparatus of claim 1, wherein said platen is configured to move in an orbital pattern.

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22. (Amended) The apparatus of claim 20, wherein said film forming agent comprises at least one of imidazole, benzotriazole, benzimidazole, benzothiazole, adenine, proline, quinaldic acid, triazole, benzofuran, benzothiadiazole, phenylenediamine, catechol, aminophenol, mercaptobenzothiazole, mercaptobenzotriazole, mercaptobenoxazole, melamine and thiadiazole.

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24. (Amended) The apparatus of claim 1, wherein the apparatus is configured to monitor a change in an electrical resistance across the metallized surface on the workpiece upon the removal of the at least a portion of the metallized surface.

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39. (Amended) The method of claim 36, further comprising moving said platen in an orbital pattern.

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52. (Amended) The method of claim 36, further comprising monitoring a change in an electrical resistance across the metallized surface on the workpiece as the at least a portion of the metallized surface is removed.

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56. (Amended) The method of claim 36, wherein said supplying a first electrolytic solution comprises supplying an electrolytic solution having a film-forming agent comprised of at least one of imidazole, benzotriazole, benzimidazole, benzothiazole, adenine, proline, quinaldic acid, triazole, benzofuran, benzothiadiazole, phenylenediamine, catechol, aminophenol, mercaptobenzothiazole, mercaptobenzotriazole, mercaptobenoxazole, melamine and thiadiazole.

Please add the following new claims 67-74:

67. (New) The apparatus of claim 24, wherein the apparatus is further configured to detect an endpoint of planarization of the workpiece.

68. (New) The method of claim 52, further comprising detecting an endpoint of planarization of the workpiece.

69. (New) An apparatus for removing metal from a metallized surface of a workpiece, the apparatus comprising:

a polishing pad atop a rigid platen;

a driver motor operably connected to said rigid platen to produce orbital motion thereof;

an electrically conductive surface disposed proximate to said polishing pad and said platen;

a plurality of contact elements disposed at least partially in the polishing pad proximate the metallized surface of the workpiece and remote from an edge of the metallized surface;

a workpiece carrier configured to press the workpiece against the polishing pad; and

a power source connected to said contact elements and said electrically conductive surface and configured to apply an electric potential difference between the metallized surface of the workpiece and the electrically conductive surface to thereby remove at least a portion of the metallized surface from the workpiece.

70. (New) An apparatus for removing metal from a metallized surface of a workpiece, said apparatus comprising:

a polishing pad;

a conducting surface disposed proximate the polishing pad; and

a plurality of contact elements disposed within said polishing pad, said contact elements configured to contact the metallized surface of the workpiece when the workpiece is pressed against the polishing pad, said contact elements further configured for electrical communication